

**SURFACE AND SUBSURFACE ASSESSMENT  
TRADE WASTE INCINERATION FACILITY  
SAUGET, ILLINOIS**

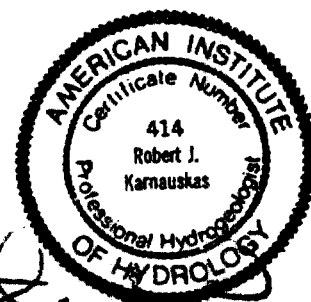
**ILD098642424**


June 6, 1989


**Prepared For:**  
Chemical Waste Management, Inc.  
3003 Butterfield Road  
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**For Submittal to:**  
RCRA Activities  
U.S. EPA, Region V  
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## 1.0 EXECUTIVE SUMMARY

This report present the results of a soil sampling and assessment program at the Trade Waste Incineration (TWI) facility, Sauget, Illinois. This assessment was performed for Chemical Waste Management, Inc. to meet the requirements for Section II of the USEPA permit ILD098642424 for the TWI facility.

To carry out this program, 20 soil boreholes were installed and sampled across the site. The boreholes ranged in depth from ten to fourteen feet, which is above the water table at the TWI facility. Subsurface soils found consist of fill overlying native alluvial sand, silt, and clay deposits. The fill ranges in thickness from zero to 9.5 feet across the site and consists of predominantly cinder slag and ash fill overlain by road base gravel in active areas.

At each soil borehole location, a minimum of two and maximum of three soil samples were collected and submitted for laboratory analysis. Soil samples of the cinder slag fill at five locations were submitted independently for laboratory analysis of 2,3,7,8-TCDD and PCB. Two soil samples from native soils at each of the 20 borehole locations were submitted for laboratory analysis of 2,3,7,8-TCDD, PCBs, priority pollutant volatile and semi-volatile organics (base neutral and acid extractable compounds), arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

Laboratory analysis of cinder slag fill and native soil samples submitted revealed non-detectable levels of TCDD and PCBs. Low levels of trichloroethene ranging from 0.009 to 0.047 ppm were found at seven of the 20 borehole locations. Only one of the 20 soil sample locations revealed low levels of other volatile organic compounds (VOCs) including 1,1,1-trichloroethene, tetrachloroethene, toluene, and xylene. Decreasing photoionization detector (PID) measurements at this location would seem to indicate a past release of a volatile organic compound- (VOC) containing liquid.

Low levels of semi-volatile organic compounds were detected at two of the 20 sample locations. Heavy metal analyses for native soils at all locations appear to be within background levels published from various sources.

Based upon the results of the soil sampling program, there do not appear to be significant risks to the public health or the environment at the TWI facility.

Documented areas of contaminated soil and ground water exist on adjacent properties located hydraulically upgradient and downgradient of the TWI facility. The Illinois Environmental Protection Agency (IEPA) is in the process of studying a number of locations in the Sauget area where hazardous constituents are apparently present. Any regional ground-water contamination should best be addressed as part of these activities.

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IEPA-DLPC

Table 1. Summary of Photoionization Detector (PID) Headspace Analysis

Depth	BOREHOLE DESIGNATION																			
	A-1	A-2	A-3	BB-1	BB-2	BB-3	CC-4	CC-5	D-1	D-2	E-1	E-2	E-3	1	2	3	4	5	6	7
0-2	7.0	0.0	0.0	2.9	1.7	1.4	2.4	2.2	8.0	1.0	6.0	12.5	8.0	1.5	5.0	7.0	10	24	6.0	3.0
2-4	3.0	2.0	2.0	3.2	2.9	1.8	3.6	3.6	6.0	0.2	7.5	10.0	20	1.5	3.0	8.0	6.5	3.0	3.0	4.0
4-6	4.0	2.5	2.0	3.3	2.4	2.1	2.5	3.7	5.5	0.8	8.5	6.0	6.0	1.6	---	9.0	6.0	8.0	4.0	4.0
6-8	4.0	4.0	1.5	3.3	1.9	2.7	3.5	4.9	5.5	0.8	8.5	5.0	7.0	1.0	5.0	7.0	2.6	6.0	4.0	4.0
8-10	4.0	5.5	2.5	3.3	1.3	2.7	---	4.5	5.0	2.8	6.5	6.5	7.0	1.4	6.0	4.0	1.8	4.0	1.0	5.0
10-12		6.0	0.8																	
12-14		0.0																		

--- indicates no sample recovery

All values in ppm

Table 3. Summary of Heavy Metal Analyses

All units expressed as ug/g (ppm).

Soil Sample Designation	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
A-1 (2.5-3.5)	4.14	46.48	ND	23.36	16.14	0.26	ND	ND
A-1 (8-10)	4.55	156.00	ND	17.92	19.12	0.27	0.53	ND
A-2 (9.5-10.5)	5.89	177.69	ND	18.98	24.62	0.20	ND	ND
A-2 (12-14)	4.14	170.77	ND	13.30	11.24	0.23	ND	ND
A-3 (3-4)	2.78	60.85	ND	11.89	ND	0.21	ND	ND
A-3 (9.5-10.5)	7.01	153.34	ND	18.88	12.17	0.22	ND	ND
BB-1 (2-4)	ND	171	1.65	10.8	10.06	ND	ND	ND
BB-1 (8-10)	ND	239	1.87	16.2	8.77	ND	ND	ND
BB-2 (2.5-4)	ND	173	1.13	21.5	6.01	ND	ND	0.60
BB-2 (8-10)	ND	211	1.83	17.5	11.2	ND	ND	ND
BB-3 (5.5-8)	ND	206	1.65	16.7	16.6	ND	ND	ND
BB-3 (8-10)	ND	69.7	0.74	6.23	ND	ND	ND	ND
CC-4 (0-2)	ND	131	2.3	8.78	39.5	ND	ND	ND
CC-4 (8-10)	ND	177	0.97	8.36	ND	ND	ND	ND
CC-5 (2-4)	ND	183	1.19	10.2	4.58	ND	ND	ND
CC-5 (8-10)	ND	234	2.02	18.1	8.89	ND	ND	0.50
D-1 (3-4)	5.23	150.79	ND	10.10	9.11	0.19	ND	ND
D-1 (8-10)	4.43	180.83	ND	10.16	14.89	0.20	ND	ND
D-2 (1-2)	4.46	157.94	ND	15.17	14.42	0.23	ND	ND
D-2 (8-10)	4.81	161.76	ND	15.93	15.53	0.27	ND	ND
E-1 (1-2)	6.56	211.26	ND	15.29	44.72	0.17	ND	ND
E-1 (8-10)	3.26	112.09	ND	8.19	10.89	0.16	ND	ND
E-2 (1-2)	5.37	149.98	ND	ND	29.46	0.17	ND	ND
E-2 (8-10)	2.17	93.38	ND	6.25	11.01	0.16	ND	ND
E-3 (1-2)	5.99	102.90	1.80	14.59	51.97	0.27	ND	ND
E-3 (8-10)	4.08	173.34	ND	10.06	15.34	0.23	ND	ND
Support 1 (5-6)	4.26	163.55	ND	13.03	12.53	0.25	ND	ND
Support 1 (8-10)	1.98	37.60	ND	7.30	4.53	0.22	ND	ND
Support 2 (2.5-3.5)	5.65	178.50	ND	13.51	15.99	0.30	ND	ND
Support 2 (8-10)	4.81	188.77	ND	35.81	16.32	0.28	ND	ND
Support 3 (1-2)	5.91	168.67	ND	38.73	12.76	0.29	ND	ND
Support 3 (8-10)	5.74	185.17	ND	19.53	14.05	0.30	ND	ND
Support 4 (1-2)	4.44	208.69	ND	23.31	44.71	0.27	ND	ND
Support 4 (8-10)	4.11	147.62	ND	25.93	ND	0.29	ND	ND
Support 5 (5-6)	6.95	166.18	ND	11.09	ND	0.33	ND	ND
Support 5 (8-10)	5.06	177.76	ND	77.19	18.55	0.26	ND	ND
Support 6 (6.5-7.5)	3.35	109.36	ND	12.09	68.32	0.25	0.51	ND
Support 6 (8-10)	5.86	159.37	ND	12.42	11.40	0.27	ND	ND
Support 7 (4.5-5.5)	3.69	95.23	ND	8.50	10.61	0.24	ND	ND
Support 7 (8-10)	3.19	107.47	ND	12.67	10.86	0.26	ND	ND
*Trace Element Range	1-50	100-3000	0.01-0.7	1-1000	2-2000	0.01-0.3	0.1-2	0.01-5
*Trace Element Average	5	430	0.06	100	10	0.03	0.3	0.05
Detection Limit	0.6/4.7 <sup>+</sup>	3.2	1.0	1.6	0.6	0.1	0.4	1.4

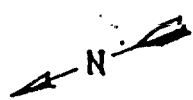
\* USEPA, 1983, Hazardous Waste Land Treatment, Office of Solid Waste and Emergency Response, SW874, Table 6.46, page 273.

<sup>+</sup> Detection limit for the graphite furnace method/inductively coupled plasma method.

ND - Not Detected

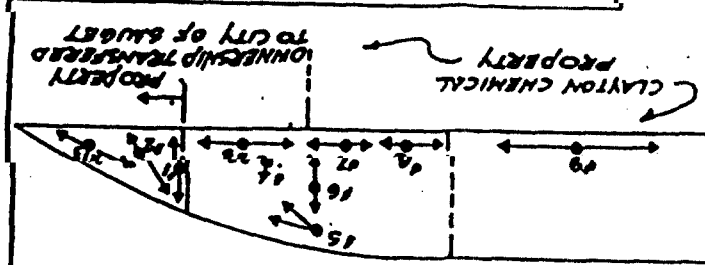
APPENDIX B  
TRADE WASTE INCINERATION SUMMARY OF  
PREVIOUS SOIL SAMPLING RESULTS  
ENVIRODYNE ENGINEERS, 1983 AND 1984

NOTE: ARROWS INDICATE APPROXIMATE LOCATION OF COMPOSITE SAMPLES



PROPERTY LINE

PROPERTY LINE



SAMPLES/COMPOSITE	DEPTH	TCDD (ppm)	PCB (ppm)
1	N. Boundary	NA	< 0.1
2	W.W.T.P. Lift Station/Wash Out	< 0.00015	< 2
3	I. Boundary	NA	< 0.1
4	Soil Beneath	NA	< 0.1
5	Gravel	NA	0.880
6	S. Boundary of	NA	< 1.0
7	Original Site	0.0016	0.728
8	Low Area Adjacent To Blue Tanks	< 0.00014	< 20
9	Adjacent To Previous Site	< 0.00025	< 0.1
10	Clayton Chemical	NA	0.65
11	S. Acreage, E. Wall Line	NA	< 0.5
12	S. Acreage, Interior Wall Line	NA	< 0.25
13	North Acreage	NA	< 5

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DATE 1/23/80

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REVISIONS PREVIOUSLY SUBMITTED TO U.S. EPA AND ILL. DEPT. OF NATURAL RESOURCES

TRADE WASTE INCINERATION

CONSTRUCTION OF REPORT AND DRAWINGS TO BE COMPLETED BY DATE SPECIFIED